

THE  
METHOD and plain PROCESS  
FOR MAKING  
POT-ASH,

EQUAL, if not SUPERIOR

To the best foreign POT-ASH.

PUBLISHED,

In Consequence of the late Encouragement granted by  
Parliament for that Purpose.

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By THOMAS STEPHENS.

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L O N D O N :

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# P R E F A C E.



THE numerous and expensive Attempts for making *Pot-Ash* in his Majesty's *American* Dominions, though unsuccessful; and the Encouragements that have been given there, sufficiently evince the Utility of it, in the *British* Plantations; as the late Reward and former Indulgence of Parliament do the Importance of it to this Nation.

My Attention to this Subject was long, expensive and painful, before I could bring the Commodity to its present Perfection; nor was the Opposition I encountered without Doors, on soliciting a public Consideration for this Service, overcome without much Delay and Difficulty. And as the Views of particular Persons do not always coincide with the Interest of the Public; it is possible that Circumstance, joined to the Envy of another's Success, may still occasion some Endeavours to lessen the good Effects of a Design, which every disinterested Friend to his Country must rejoice to see fully accomplished. This Undertaking however, it is hoped, will finally succeed, from the Credit and Encouragement



it has received in Parliament; which Encouragement renders it my Duty, to communicate this Procefs, with the utmost Integrity and Expedition; that its Advantage may the fooner be extended to the Public.

This indeed might have been effected without the Addition of a Preface; which, I confess, is but too relative to myself, and chiefly occasioned by the Behaviour of a few others on this Occasion. Last Year I was followed from *London* to *America* by Letters as artful as the Opposition of the Contractors for *foreign Ash*, on the memorable Day, when they confronted me *for the Good of their Country*; as more than one of the Agents for the Colonies can Witness; tho' they would by no Means appear on Behalf of making Pot-Ash in the *British* Plantations.

Something in Excuse for the Behaviour of those interested in the Importation of foreign Ash may be offered, from the too common Prevalence of Self-love over public Spirit; but that they should be countenanced by any who owe their first Breath to the Colonies that give them Bread, is much less natural, and thence less pardonable.

It has been said by one Agent, who was at great Pains to make Gentlemen believe the Art of making Pot-Ash, "is far from being a Secret in *America*," that I could only make Pearl-Ash; and it has been industriously reported too, in the Country he represents, that I only know what I learned of a *German*.

Neither that Gentleman, nor any of his Constituents, would have spread this Scandal, had I been weak enough to have trusted him or some of them with my Secret; which they had the Modesty to ask; and which, not entirely confiding in *their* public Faith, I had the Precaution to conceal; tho' I indulged their Curiosity with an

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Experiment in the *German* Method ; and from the Offer they made me I may judge of my Reward, had I relied on their Honour. But that Gentleman gratified his Resentment by arrogating to himself the Merit of obtaining the late Act of Parliament, for importing Pot-Ash Duty free ; tho' he must be conscious, that I not only first proposed it, but that my assiduous Application to that Service, from *December* to *June*, at Length effectually inclined the Wisdom and Justice of the Legislature to pass that Act.

It has been reported likewise, that I wanted a Reward for working on the Principle of some Patentees, altho' I made and sold Pot-Ash, before they had their Patent, or made any to my Knowledge. A Gentleman lately informed the Committee of the House of Commons, “ that  
 “ he was in *America* about the Year 1747, and saw a  
 “ Work of Mr. *Stephens's* for making Pot-Ash in *South*  
 “ *Carolina*; that the Method of making it was then a  
 “ Secret; and he imagined those Works must have been  
 “ a considerable Expence, and a great deal of Trouble  
 “ to him.”

Mr. *Pinckney*, and other Gentlemen of Note, certified to the Lords of the Treasury, that I had been at a great Expence before the Year 1747 ; as well as since.

But as this same Patent was not granted before the Year 1751 ; and in their Petition they claim a general exclusive Right, which their Patent does not, nor can extend to ; so they confess they have since failed in an Attempt made in *North Carolina* ; and as they did not prove their Pot-Ash to be good ; tho' they alledge they have imported about ten Tons ; it may be questioned, Whether they have made any Improvement—Whether they have  
 not



not imported Wood-Ashes—Whether a greater Number is not concerned in the Patent, than the Five who signed the late Petition against me—And, lastly, Whether it might not be commodious for them to make a Monopoly of this Branch of Commerce, with an exclusive Charter, and the additional Help of any Principle now published.

With Regard to the Opinion of others, who do not oppose from Competition or Interest, but affect, to be thought knowing, the following Instance may be sufficient to ascertain the Regard commonly due to them. A Gentleman of Speculation, undertaking to prove that my Pot-Ash, to use his own Phrase, was no more than Pearl-Ash ; for Trial I put into his Hand some, which I bought at a Shilling a Pound, of an eminent Dealer in that Commodity, upon his Word of its being the very best *Russia*, nor did he deceive me in it ; but, after the Experiment had been made, the identical *Russia* Pot-Ash, being supposed to be mine, was pronounced Pearl-Ash by the speculative Gentleman ; and was declared inferior to the *Russia*, and not to be like it, even by the Seller himself. If this may be imputed to an Error in Judgment, their persisting in such Detraction may be ascribed to a different Error. Can Citizens blame the Measures of a Ministry, when mislead by Citizens ?

Now the Secret is known, there is no more in it than was in *Columbus's* Egg, notwithstanding others have been in Quest of it these fifty Years ; and how far it will answer Time will soon demonstrate. But for the present I leave it to the Candid to judge, whether a Process consisting of so many Operations, each of so much Variety, differing from every Thing of the Kind, and producing the best Pot-Ash in the World, is not the Effect of long Investiga-  
tion



tion and repeated Experiments. To these I am content to ascribe my Success, without pretending to any uncommon Penetration or Ingenuity, of which I am not conscious: Though, if Perseverance in these Researches be laudable, I cannot be so affectedly modest to suppose, there is no Merit in so many Years assiduous Labour; and in burying the most valuable Part of my Life in Ashes; which I do not delight to puddle in, more than others; notwithstanding I have not been afraid of dirtying my Hands with them. And altho' I am sincerely thankful for the Sum which the Parliament has been pleased to grant me, and content with my reasonable Prospect of their further Bounty; a real Satisfaction, abstractedly from these, is the View of saving my Country 100,000*l.* a Year. This most material Purpose was undoubtedly the Cause of the present parliamentary Encouragement, so judiciously granted at a Juncture, when they observed most other Nations endeavouring to promote and extend every Branch of Commerce, resulting from their natural Advantages, or particular Situation.

I have thought it expedient here to glance at the Crafty and Invidious, for a Caution to the Unwary: But as I have greater Pleasure in acknowledging my Obligations, than from indulging my Resentment, I cannot conclude without mentioning, with the greatest Deference and Respect, the Goodness of the Right Honourable the Lords of the Treasury, and of the noble Duke presiding there, in the extraordinary Candour, shewn by their Lordships, when my Proposal was tendered to their Consideration. To Mr. *Hardinge* I am particularly obliged, for his Patronage and Assistance. And I am glad to embrace this Opportunity of thanking, with sincere Gratitude,



tude, every Nobleman and Gentleman, who has been pleased to espouse and promote my Endeavours for the public Service. To Mr. *Thomlinson* is the Public, as well as myself, indebted for his zealously espousing this Undertaking, and the Trouble he took on many Occasions to rectify the Misinformations given by the avowed Enemies to the Enterprize ; though I am a Stranger to him, as well as to Mr. *Hanbury*, that Champion for *British Plantation Pot-Ash* ; to whom I am not only obliged for his distinguishing himself on its Behalf, when the Dealers and their Adherents had nearly stifled it in its Birth ; but for his further Protection and Support towards the effectual establishing of the Manufacture, which will be a lasting Monument of his Integrity and Worth.



T H E

Errata. Page 4. In the Note, for *Week*, read *Work*. Page 7. l. 6. for *Portion*, read *Proportion*. Page 16. l. 16. for *Proposal*, read *Proposals*.





## The PROCESS for making POT-ASH.



THE Timber may be felled at any Season of <sup>Cutting the Wood.</sup> the Year. Cut it into such Lengths, as most conveniently to roll the Logs together; for Instance, eight Feet long. Lay from three to ten of these Length-ways, in one Pile or Heap, which is the best Method for burning gently; and let the Ground be dry. Fill the Vacancies, between the Logs, with smaller Wood: See the Pile, *Plate I. Fig. I.*

The sooner the Wood is burnt after it is felled the bet- <sup>Burning it on the Ground in the open Air.</sup> ter; and set Fire to the Pile by laying Embers upon the bottom Logs, at each End, to kindle\*. And for burning the Brush with the smaller Loppings, and other small Woods, which are best done by themselves; lay the Brush length ways on the Ground, Top to Top, lapping over a little, with the Butt-ends outwards, and as close as a Fagot. The larger Woods of this Sort must be laid on the Top, till the Heap is at least four Feet high, the Length of the Brush, set against each other, making the Breadth of the Heap, as *Plate I. Fig. II.*

As soon as the Pile is burnt down, rake such Ashes as lie thin round the Outside, a little in towards the Middle. Add no fresh Fuel, nor throw on any of the Brands.

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\* These Rules may seem unnecessary, but will not be found so; for with such Care more Ashes will be produced with less Labour than otherwise.



Collecting the  
Ashes.

Let the Ashes lie without the least Stirring, till you can bear your Hand in them, and no longer. Then carry them to a House, or put them under a Shed, on a Plank-floor, raised a little from the Earth, and well jointed: There wet them, till brought near to the Consistence of Mortar, in the first Mixture of Lime and Sand, or so as to stick together, and ram them in a Heap, in which they are to lie not less than twenty Days; but will get no Hurt if they continue in that State for Months; observing, that if they are to lie throughout the Winter, to be more sparing of the Water, and ram them so much the closer; and that the Top of the Heap never grows quite dry, as it will do if not kept moist by wetting again.

Or burning the  
Wood in a  
Kiln.

Wood may also be burnt in a Kiln, and then it must be cut into such Lengths, as may best suit the Size of the Kiln, and be most convenient for Carriage. See the Form of such a Kiln, *Plate I. Fig. III.* The Mouth of the Ash-hole must be stoped quite close, by daubing the Joints of the Lid with Loam, or throwing a Bank of Sand or Earth against it. Keep the Bed of the Kiln filled with Wood, up to the Surface, but not above it; and keep it burning incessantly, till the Ashes rise within six or eight Inches of the Grate and no higher. Draw the Ashes out whilst red hot, sprinkle them in that State, with Lye from four to six Carrats Weight, as expressed, *Plate I. Fig. IV.* till the Ashes are made damp, and ram them in a Heap as before; but separate from the Ashes which are made in the other Method already mentioned.

Making the  
Lye.

The Ashes thus prepared, are to be put into Vatts, made with a false, latticed Bottom, as in *Plate II. Fig. I.* first putting coarse Wheat or Rye-straw, about a Foot thick on the Lattice or Grating; on which put the Ashes,  
till



till the Vatt is filled to within four or five Inches of the Top, ramming them all the Way up, particularly on the Sides, as tight as you can, with a small light Rammer, without bursting or injuring the Vatts. Form on the Top of the Steeper, a Hollow or Bason in the Ashes, for receiving Liquor, about four or five Inches deep, and leave the Ashes about four or five Inches thick, on the Sides, by raising a Shoulder or small Bank of Ashes round the Sides; so that the Liquor may not overflow the Edges of the Ashes at Top; for this would wash the Sides of the Vatt, without thoroughly soaking the Middle. Keep this Hollow or Bason constantly filled with *soft* Water in the Steeper A, until the Ashes will imbibe or receive no more; which will be in four and twenty Hours or more, according as it is rammed. Then turn the Cock and let off what shall be soaked through, into the lower Chamber of that Steeper, and no more,\* into it's Receiver: Follow that Steeper with fresh Water, on the same Ashes, for a Second and several other Runnings; each of which will come off in a few Days, till the Liquor contracts neither Smell or Taste, nor Weight to turn the Scale: Then heave out the Ashes, and charge the Steeper A afresh. Upon drawing off the first Running, from the Steeper A, have the Steeper B filled with Ashes, as before; and put into the Hollow at Top, the Lye so first run off; and with the smaller Lyes of Course, which for Distinction sake we will call half Lye, till full; and draw it off in the same Manner as directed for the Steeper A. If this weighs eighteen Carrats or more in the Phial and Scales, *Plate I. Fig. IV.* pump it into the

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\* If the several Runnings are not kept separate, till the Lye becomes weak, it will not be brought to its due Strength.



Cistern F, as Lye which is fit for Use : If it falls short of eighteen Carrats, pass it on, as half Lye, to the Steeper C, and through fresh Ashes till strong enough. What is drawn after putting on Water we call small Lye.\* With Kiln-Ashes only, the Lye, from the Water passing thro' the first Steeper, will be strong enough, to be set apart in the Cistern, if the Ashes are rightly prepared. Thus proceed filling and watering out every Steeper in Turn. N. B. If your Water be hard, whether Spring or River, let it stand a Day or two or more, according to the Heat of the Weather, exposed to the Air, in a shallow Cistern, and it will become soft. When you use Kiln-Ashes with others, observe to lay them at the Bottom of the Steeper, and the others at Top.

The Lye must be conveyed from the Cistern F, as it is wanted, to the Vessel A, *Plate II. Fig. II.* where to every Gallon of Lye that is Proof, add and mix with it three Ounces of fine, light, clean Wood-Ashes : And to that Lye which is one fourth over Proof, put six Ounces of Ashes : And to that Lye which is two fifths over Proof, put twelve Ounces of Ashes ; adding or diminishing the Quantity of Ashes in such Proportion, according to the Strength of the Lye.

Evaporation of  
the Lye and  
melting the  
Salt in the Fur-  
nace.

For the Evaporation of the Lye and melting the Salt, erect a Furnace as *per Plan, Plate II. Fig. II.* and heat it till you bring it to what is termed a Straw-heat, or to be near a White-heat ; of which Degree the Side-doors being red-hot, is commonly a Mark ; and it will take eight and forty Hours or more, to bring a cold Furnace to that heat ; a gentle Fire doing best in the Beginning, especially when the Furnace is newly erected ; but when it is thorough hot,

\* Excepting the first Vatt to begin the Week.



hot, a little Fuel, with as little Labour, will maintain the Heat. The Furnace being hot, turn the Cock of the Vessel A, and pass the Mixture through the Pipe B, into the Furnace. But let it not run in so fast as to reach much beyond the Middle of the Floor, before it changes Colour from dark to red or bright; and let the Heat prevail towards the Front or back of the Furnace, as you perceive it to work or see necessary. When you find the Mass begins to gather about the Flues, or in Heaps, any where in the Back of the Furnace; withdraw the Pipe, and forbear to run in any more, until the Furnace is cleared, by driving the Fire backwards in its full force. You must have more than one Pipe in Use, it choaking in an Hour or less; with a Salt, that gathers in it from the Lye, to Appearance and Taste, something like what is called *Epsom* Salt. With this Management, which here requires no extraordinary Attention, in an Hour or less there will issue forth, a red hot Stream of melted Salt, which is Pot-Ash; and being broke to Pieces, as soon as cold for Packing, and put in tight and close Casks for Sale, will in no Respect, fall short of the best Foreign Ash, whatever Country produced in or imported from.



### The PROCESS for making PEARL-ASH.

**P**ROceed in the foregoing Process until you have your Pearl-Ash Lye; which though it be not tried with that Exactness as before, must be at least so strong as to bear an Egg. When it is to be boiled in the Caldron, *Plate II. Fig. II.* with Violence if you will, until a Pelicle appears



pears on the Surface, when the Fire must be slacked, and the Liquor kept gently boiling, till it thickens, and then blubbing till quite dry and hard as Stone.

Cut this out with a cold Chizzle, and spread it on the Floor of the Furnace. Keep open the middle Door, stop the Flues, so as to make a very gentle Fire, especially at first, and keep the Salt barely covered with the Flame. When you find it begin to look fair and incline to look red, turn it and keep it near red hot till of a Pearl Colour. Let it stand till cold enough to handle before 'tis drawn, and put what is imperfectly calcined, with such of it as falls to Powder, back into the Caldron with fresh Lye.

THIS Process might have been spared, had it not been expected of me; as by the other Method, the lixivious Salt called Pot-Ash, is made both better and cheaper. Pearl-Ash takes its Name only from its Colour which is given it by the Fire in this Method of making, which is well known in *Germany, Hungary* and other Nations.



## O B S E R V A T I O N S.

Why Pot-Ash  
is sometimes  
bad.

**P**OT-ASH being called bad in two Respects only, *viz.* that which by the Workmen and Manufacturers is termed vicious, it not being cleansed from the Acid and Sulphur; or else such as we find poor in Salt. The First has been the Case with Numbers of Experiments, the Pot-Ash having been often so bad that it would not sell;\* but

\* See Mr. *Champion's* Letter, and Extract of the Report of the Committee of the House of Commons.



but which cannot happen according to this Process; The Authors cannot be so. however it may, in other Methods practised; the Strength and Continuance of the Heat it undergoes in the Furnace cleansing it from those ill Qualities. And as for the other Faults; if, from Greediness, too great a Portion of Ashes be used, the Mass will be difficult to melt; and, instead of turning out Pot-Ash, will remain an inert Calx in the Furnace; unless an excessive Heat should be raised, which would vitrify it and be worse by the total Loss. So that in this Way of making, it is really difficult to send bad Pot-Ash to Market in any Sense of the Word.

FOR further Instructions the following Remarks are Further Remarks. also submitted.

People in *America* are seldom right in the Choice of Woods proper. their Woods, an old hollow Tree being as much to be preferred to the young, as an Oak, Ash or other Tree, that sheds its Leaf in Autumn, is to most Evergreens; among which the Pine, Cyprus, and Cedar are to be totally re- Improper. jected, not that they do hurt; but because they yield few Ashes, which produce little or no Salt.

Annuals, such as Fern, &c. tho' their Ashes produce Annuals in A- a large Proportion of Salt, yet they require too much La- merica. bour in collecting. Nor is Brush and other young Wood Young Wood, and dead. worth Regard, but for Sake of clearing the Ground. A dead Tree of any Sort is seldom good; but all Full aged and fresh cut. the Wood should be burnt as soon as cut down; though a Tree is not come to its Perfection for this Use till on the Decay.

The Use of the Kiln, or Burning on the Ground, will Kiln prefer'd to burning o- either of them do; the former, which is a Certainty, is pen. effected



effected at more Expence ; the other, which is a cheaper Method, is attended with the Risque of Loss, by Wind or Rain : therefore the Advantage of strong Lye, on which so much depends, with Regard both to Quality and Quantity of Pot-Ash, must determine in Favour of the Kiln ; without which no Ashes can well be made to Profit, whilst there is Snow on the Ground, or Frost in it.

Properties of  
good Pot-Ash.

Good Pot-Ash is ponderous and hard ; but when exposed to the Air, grows first clammy, and then runs to an oily Liquid, which dried, there remains an impalpable Powder, white, or of a light Colour. Its Appearance is fair, whether the Colour be a fine Grey, greenish, or inclining to a Marble. It has little Smell, and is of a quick, pungent, urinous Taste : does not crumble in Solution, but dissolves gradually ; and adds a Twelfth to eight Times its Weight of Water. It ferments with, but does not foam in, Acid, and unites with Oil.

WHEN the foregoing Process and Remarks were delivered to the Right Honourable the Lords of the Treasury last Year, before I went to *America*, according to Agreement with their Lordships ; Mr. *Hanbury* (who has, for many Years past, had Concerns in Pot-Ash) was so kind as to recommend it, in the following Letter, to Mr. *Hardinge* upon the Occasion.

N.



N. Hardinge, Esq;

London, 10 June, 1754.

*Esteemed Friend,*

*H*AVING perused Thomas Stephens's *Process* for making Pot-Ash, I not only find it different from every Thing of the Kind, that ever I have seen or heard of; but, having thoughtfully examined the same, am of Opinion, that the Public will reap the Advantages proposed by it.

Thy most assured ready Friend,

JOHN HANBURY.



*Of the Furnace and Materials for building it;  
and how the Fire acts upon the Salt, and its  
different Effects.*

THE two foregoing Processes, Observations and Letter, together with the Plan, were deposited at the Treasury before I went for *America* in *August* last; since which, having had further Time to recollect myself; and being, in Duty, bound to leave Nothing undiscovered, which may promote this Service, the following Pages are offered in order to give those, who undertake Pot-Ash-making, a further Insight, as well into the Nature of it, as into the Materials and Utensils to be employed, and other Circumstances attending it.



Remarks on  
the Furnace.

This Furnace I have hitherto made use of with Success, and therefore dare not advise another before sufficient Experiment be made; though I am of Opinion that something may be contrived to do the Business, with still greater Dispatch and less Expence, provided Materials are to be had that will resist the Salt in a greater Heat.

And Materials  
for building it.

That *Windsor* Loam, *Stourbridge* Clay, and other Earths and Stones, will endure the Heat is well known; but neither that Loam nor several such Stones and Earths as I have tried will withstand the dissolving Power of the Salt in Fusion, if the Heat be intense.

What are pro-  
per,

The Materials most capable of resisting the Salt, is a Mixture of tough Clay and hungry Earth cleansed from Grit. And nothing better, than equal Parts of such Clay and pure Ashes,\* cleansed from their Salt and Grit, by stirring them up in Water: Decant this Liquid whilst turbid, leaving the most ponderous at the Bottom of the Vessel, and what subsides in the decanted Water is a Virgin Earth; which, tempered with such Clay so cleansed, will bid Defiance to the Salt in this Heat; which few Simples, and nothing with Sand or Grit will do.

and improper.

Caution a-  
gainst melting  
the Furnace.

It is for Fear of melting the Hearth that I have contracted the Cove, which gives the Draft to the Furnace now in Use, and which is calculated for a Sufficiency of Heat, and no more; lest through the Inexperience of Workmen, instead of producing Pot-Ash, the Furnace should run about their Heels, as mine has done; and which will often happen, if due Regard be not had to the Degree of Heat, as well as Materials for the Floor and Flues of the Furnace; the Draft would be greater, if

\* None better than those thrown out of the Vatts.



if the Cove were made twice as deep ; and the Fire of Course would do more Execution ; but it must be observed, that this Operation must not be hurried, nor indeed any other in the whole Process.

THIS general Rule, with what goes before, will be General Rule. sufficient for the meanest Capacity, for Practice ; viz. *the Salt must be melted with a reverberating Heat ; and, the greater that Heat the better the Pot-Ash ; as may be seen, if it runs sluggishly, it is then commonly Foul, or at least the Benefit of the Ashes is in some Part lost ; the greater Proportion of which to the Salt, the greater must be the Heat ; and if Time is allowed, where the proper Degree of Heat is wanting, it answers, in some Measure, when Ashes are mixt with the Lye ; and entirely if the Lye is without them.* But as Air Furnaces are varied many Ways, according to the Use of them, no one can be at a Loss, if Care be taken of the Materials, with which he builds.

For the Secret of making Pot-Ash and the Merit of Advantages in this Process. this Process lie in evaporating the Lye, and calcining and melting the Salt, together with a certain Proportion of Ashes ; and, by that Means, reducing two Operations to one ; besides changing the Ashes into Salt ; which hence acquires that excellent Disposition ; or, as In Point of Quality, the Manufacturers term it, Richness, beyond others ; as, by this Means too, it becomes more rapacious, and devours the terrestrial Parts of the Ashes, and reduces them to one homogeneous Body of fixed Salt. Besides which Increase, by Contact with Ashes, there is an Addition and Quantity. of volatile Salt, which becomes fixed by the Flame, from proper Fuel thus applied. Herein lies the Myste-



ry of making Pot-Ash: But why it is so, or why the Flame shall have so much better Effect in this Case than a more intense Heat, in another Shape, I must leave to those better versed in Chymistry. And can only say, that a Quantity of Salt, melted with a Proportion of Ashes, in a Crucible with a Charcoal Heat, will not so readily unite with them, nor will it be so caustic without them\*.

Not to be effected but by the Flame.

Hence it may be thought that the Flame is necessary, and that it is the chief Agent in producing this Change of Ashes into Salt; for the Lye is little sooner in the Furnace than evaporated; though the black Matter, resembling Treacle, then remaining, does not so easily submit to the Force of Fire; but continues refractory for some Time, even in an intense Heat; what this Matter is, I am not able to say; nor, as those learned in the chemical Art do not call it an Acid, can I give it a Name. Oil it is not, because not inflammable, nor Salt, because it does not fix nor fly off; but part of it, in a different Operation, is ultimately consumed. This plainly appears in the making of Pearl-Ash; for when the Lye is evaporated, it will remain boiling, in this State, four and twenty Hours without visible Alteration or Diminution, tho' the Bottom of the Caldron is red hot; and from whence a Piece of Wood may be drawn out in a red Coal through the dark Liquor; which is of so rapacious a Nature, that a Piece of Cloth, Linnen, or Woolen, thrown into it, immediately disappears. It quickly devours Flesh and Bones, and corrodes Metals. At Length the Salt grows dry and hard as Stone; but the Mass is diminished in Weight. From

Loss in making of Pearl-Ash.

\* May it not be owing to this? The Acids which are expelled by the ordinary Fires, are reflected by our reverberatory Heat, upon the Ashes; and by that Means form a saline Body with them.



From the Opinion of the learned and ingenious Dr. *Morris*, this appears to be an alkaline Liquor, which wants a Proportion of Earth to acquire an alkaline Form. And this is the best Account was ever given of it.

POT-ASH which is an Alkali or that artificial Salt called a Creature of the Fire, I am of Opinion, is in a great Measure the Offspring of that Element, and that the Ashes, by adhering to the Liquor in the Furnace, form a Matrix for it's Generation. And I cannot help being of Opinion that this Liquor contains an Acid. If it were Oil it would be inflammable. If it were fixed Salt it would unite with Oil, and not curdle it in the making of Soap. But I mention this, only to give the Makers of Pot-Ash some Notion of its different Qualities and their Causes; leaving it to those learned in the Chemical Art, to rank them under proper Denominations.

Though I must further observe, that Pot-Ash is often good or bad, as it has more or less of the ill Quality <sup>Why Pot-Ash is good, or not, so.</sup> which abounds in this Liquid, or in the Ashes when first made from Vegetables burnt; and which is sometimes found in foreign Pot-Ash. It sometimes discovers itself by the Colour it gives, which something resembles that of Coffee, or so tinging the Water in which the Ash is dissolved. 'Tis this, that instead of bleaching Linnen, stains it, and destroys its Fabrick; which is not the Case with that made in the Method here published: Let the finest of Linnen be boiled, and continued ever so long in a Lye as strong as Pot-Ash will make it.\* But

\* Pot-Ash is sometimes so bad, as to make Linnen rotten in three or four Wettings, with Lye made from it; and to take the Skin from the Hands, or strike the Tongue almost as quick as Aqua Fortis; which is not the Case with that made according to the foregoing Process; for at the same Time that you may suffer it laid to the Tongue, or that the strongest Lye made from it will only soften the Skin, without chopping or making it so rough, as some Soap, eight Pounds of it will go as far as nine of the best that ever was made, in Scouring or any Use which Pot-Ash is put to.



Further ad-  
vantages in  
this Process.

But from what has been said, it is plain that the Excellence of the foregoing Process does not consist only in the Goodness of the Commodity; for we can make it ten *per Cent.* better than the best foreign Ash, for less by ten *per Cent.* difference in the Cost.

As Pot-Ash thus made will answer all the Ends of Pearl-Ash, there needs Nothing be said of that Process; which is too well known to some in *America* to be expensive, by Reason of the tedious Elixivation; and from other Causes as abovementioned.



### *Consumption and Utility of Pot-Ash.*

HAVING endeavoured first to make the Process plain and intelligible, and still more perspicuous by adding some Remarks, it may not be unacceptable, to those who incline to engage in this Sort of Undertaking, to be informed of the several Branches of Trade, in which their Commodity is used as well as the Quantity consumed, and the Character which this *American* Pot-Ash has.

Uses of Pot-  
Ash.

Importation,

IT is not necessary only in the making of Soap and bleaching of Linnen, but for the Dyers, Scourers, Calico-printers, and in other Manufactures. The annual Quantities imported into the three Kingdoms, is computed to be upwards of three thousand Tons; which, according to the Price it has sold for, amounts to one hundred thousand Pounds or more. It has been always paid for in ready Money to *Russia*, *Poland* and other Countries.



tries. And yet, whether from the Use of Lime, bad<sup>and great Value.</sup> Pot-Ash, or other Trash, notwithstanding this large Quantity, Linnen is often injured in the Bleaching, much to the Prejudice of this Manufacture of no less Value to this Kingdom, than Importance to *North Britain* and *Ireland*, but that there is some Defect, is evident from Complaints too often made. That Soap also is sometimes intolerably bad, especially upon any great Scarcity of Pot-Ash, as was the Case about three Years ago. As the Importation of Pot-Ash from the *British* Colonies would be a means both of reducing the Price of Soap, and making it better, so it would, not only occasion a great Exportation of this Commodity, but likewise of the Woolen and other *British* Manufactures, and furnish the Plantations with a valuable Staple in Return for them: For Want of such Returns, the Trade to *America* has been occasionally attended with great Losses and Disappointments. If to the above Considerations, we add that of employing his Majesty's Subjects in Navigation by the Carriage, and in Labour by the Manufacture of this Commodity, there is no Doubt of its being highly beneficial in this Light also. Then the great Utility of importing Pot-Ash into these Kingdoms, from his Majesty's *American* Dominions, is obvious to a Demonstration.

AS a Proof what favourable Sentiments the Legislature entertained of an Undertaking of this Kind, it is well known, that no Proposal was ever received with a more universal Satisfaction by the Legislature, than that of cultivating Pot-Ash in our *American* Colonies. And accordingly the Act of Parliament, passed in 1751, de-



declares, “ *That the making of Pot-Ashes and Pearl-Ashes in the British Plantations in America, would be advantageous to the Trade of this Nation. And enacts, That the several and respective Subsidies, Customs, Impositions, Rates and Duties, payable on Pot-Ashes or Pearl-Ashes, made in and imported from his Majesty’s Colonies in America, into any Part of Great Britain, shall cease, determine and be no longer Paid.*”

But, notwithstanding this great Favour and Encouragement, as three Years had passed without producing the End designed, upon my Representation to the Right Honourable the Lords Commissioners of the Treasury, of his Majesty’s Subjects in *America* being Ignorant of the true Method of preparing these Salts, their Lordships were pleased last Year to accept of the following Proposal.

PROPOSALS of *Thomas Stephens*, for discovering his Method of making Pot-Ash.

THAT the Proposer shall forthwith publish his Method ; and in Consideration thereof,

THAT parliamentary Security be given to him for one Shilling for every hundred Weight of good and merchantable Pot-Ash, to be made in and imported from his Majesty’s Plantations in *North America*, during the Term of fourteen Years from the 29th of *September* next. And,

THAT upon the Importation of the first thousand Tons, the further Sum of one thousand Pounds be paid to him, provided that Quantity be so made and imported before the 29th of *September*, 1758.

*London, Feb. 1754.*

Their



Their Lordships were so good as to recommend these Proposals to the House of Commons, but they were opposed by some Persons of *Liverpool*, who had a Patent for making *Pot-Ash* in *America*, under Pretence that it would be unfair for another to receive a Bounty for what they should make and import ; tho' the House were satisfied, as the Patentees were not to pay any Part of it by a Duty on what they might Import, that there was no real Cause of Complaint ; and were sensible too, that I came to them in a very favourable Light, having not only *first* published my Method in *America*, but also *made a Voyage, on Purpose to erect Buildings according to my Plan, collect Ashes, and make Pot-Ash*, all which I performed : Yet as that Honourable House would do Nothing, which might have the least Appearance of discouraging so useful a Branch of Trade, in any Respect, they declined granting the proposed Bounty, but gave me three thousand Pounds ; and I should be very unworthy of the Favour, could I entertain the least Doubt of their giving what more I shall justly deserve, whenever the Importation from *America* speaks in my Behalf.

AS a further Encouragement still to the *Americans*, though Pot-Ash has not been so cheap these twenty Years as it was the two last, yet what I made, sold for three and thirty Shillings *per* hundred Weight, and it is very likely will soon sell for more ; for *Russia*, which used to supply the largest Quantity, has failed for some Time ; and if it is considered what immense Quantities of Wood are consumed by that Nation for Firing, making Roads, building Barks to bring their Merchandize down their Rivers, which Barks are broken up and never carried back

D

again,



again, building whole Cities after Conflagrations, and other common Uses, it would not be surprizing that their Wood should at Length fail them; unless they were careful to plant and cultivate as they cut down, which is not the Case; consequently they may be obliged to be very sparing even of such Kinds of Wood as are used in making of Pot-Ash.

Along the Eastern Coast of *North America* there are some hundred Leagues of Wood to cut, and an infinitely larger Quantity on the back Parts of the *British* Settlements to the Westward. These great Tracts of Wood Land, tho' too far distant for Carriage of Lumber or Naval Stores and other bulky Commodities, yet, abounding in Rivers, are commodious for a Merchandize more compact.

Hence arises this Advantage, the clearing of Lands in *America* being attended with vast Expence, in distant Settlements in the Northern Colonies; where the Occupier must wait a long while, before he can see a Return for his great Labour and Expence; whereas by the Method proposed the double Purpose may be answered of clearing his Lands, and converting his Wood into a profitable Commodity. Or if he cuts only such Trees as are on the Decay, and which are *best* for his Use, he will have a Succession \* of Trees for that Use: A great Encouragement to settle on the Back of Lands already planted.

But if we view it in a national Light, the Advantage is more striking, as by clearing the Lands backwards, it will be a means for ever to prevent the Encroachments of the *French*, who will not be able to annoy our Settlements, if we dislodge their skulking Friends the *Indians*; who can do little, but under Covert, or from behind a Tree.

AS

\* Wood grows much faster in those Countries than in this.



AS no Pot-Ash made in *America* has ever stood the Test like that before-mentioned, tho' several Specimens have been imported from thence since the Act of Parliament in 1751; it may be a Satisfaction to Beginners to see some Proofs relating to it, which were given as well to the Committee of the House of Commons, as to the Board of Trade and Plantations, to whom my Memorial to the Right Honourable the Lords Commissioners of the Treasury was referred: Their Lordship's Report there-upon, together with a Declaration from the Merchants, and some other Testimonies upon the Occasion, are as follow.

*The Report of the Right Honourable the Lords Commissioners for Trade and Plantations upon the Memorial of Thomas Stephens, referred to their Lordships by the Right Honourable the Lords Commissioners of his Majesty's Treasury.*

*Whitehall, March 29th, 1754.*

MY LORDS,

PURSUANT to your Lordship's Reference dated the 11th of *October* last, we have had under our Consideration the Memorial of *Thomas Stephens*, representing to your Lordships, that he has at great Labour and Expence attained the Art of making Pot and Pearl-Ash in *America*; that he has actually made there and brought hither a Quantity of the best and cheapest Pot and Pearl-Ash, that ever was brought to *London* Market; and the said Memorialist offers to discover his Method, and to



set on Foot the Manufacture of those Commodities in his Majesty's Plantations, provided your Lordships would be pleased to order a Sum to be advanced to him to reimburse his great Expences, and would assure him of such further Gratuity, as has been usually given for great and useful Discoveries.

Upon Consideration of this Petition, and in order to report in as clear a Manner as possible our Opinion upon it to your Lordships, we think it necessary to examine the following Points.

1<sup>st</sup>. WHETHER the Petitioner is able to make Pot-Ash in *America*, equal in Goodness, and at as cheap a Rate, as the best foreign Pot-Ash brought to the *London* Market.

2<sup>d</sup>. WHAT has been the Amount of the Expences, for which the Petitioner desires a Re-imbursement: And

3<sup>d</sup>. THE Nature and Extent of the Reward he proposes to be given to him for the Discovery of his Method, and the Terms and Conditions upon which that Reward ought to be granted to him.

But before we enter into the Consideration of these particular Points, it seems necessary to state such Facts, as we think materially relate to the general View and Object of the Scheme proposed; we therefore beg Leave to acquaint your Lordships,

That although it appears to us, from authentick Accounts, that the Importation of Pot-Ash and Pearl-Ash, taken together, has increased of late Years, yet the Importation of Pot-Ash is at present decreased; and that from *Russia*, which was formerly very great, is now entirely at an end.

That



That it appears also, from the Evidence of the Soap-makers, that formerly the best *Russian* Pot-Ash was thought absolutely necessary as a principal Material in the Manufacture of Soap; but that the excessive Price, to which that Material was carried in the Markets here, induced them upon Trials to substitute in the Room of it a certain Proportion of Pearl-Ash, amounting to about two thirds.

The Cultivation of the Manufacture of Pot-Ash and Pearl-Ash in *America*, has been frequently attempted, but those Attempts have always hitherto proved abortive.

In order to give greater Encouragement to the making of the said Commodities in the Plantations, an Act of Parliament was passed in the Year 1751, to take off the Duties upon the Importation of them. But this Encouragement has not had the Effect for which it was calculated, for we do not find that either Pot or Pearl-Ash have been made there, since the Indulgence granted by Parliament, in greater Quantities than before.

And it appears from a Declaration signed by a great Number of Merchants and other Persons experienced in this Branch of Business, that the ill Success of this Manufacture in those Parts, must, in their Opinion, be attributed principally to the Want of Knowledge in the Method of making the same; and they think that all Encouragement ought to be given for the Removal of this Impediment.

Upon this Occasion it is necessary for us to observe, that the present Petitioner, at the Time of passing the Act abovementioned, made Application to Parliament in a Petition to the House of Commons of the same Nature, and  
much



much to the same Effect with that now under our Consideration.

But we think it proper to acquaint your Lordships, that the most material Parts of the Proofs produced by the Petitioner in support of his Scheme, at present arise from Circumstances of Things, and Experiments made, subsequent to those Transactions.

We come therefore to the Consideration of the particular Parts of the Petition under the Heads abovementioned ; and first,

WHETHER the Petitioner is able to make Pot-Ash in *America*, equal in Goodness, and at as cheap a Rate as the best foreign Pot-Ash brought to *London* Market.

With respect to this Point, we beg Leave to acquaint your Lordships, that it appears to us from several Papers transmitted under the Seal of the Province of the *Massachusetts's Bay*, that Mr. *Stephens*, having erected a Furnace and other Works for that Purpose, did in *April* last, make in that Province eight Hundred two Quarters and fifteen Pounds of Pot-Ash, and three Hundred one Quarter and twenty-three Pounds of Pearl-Ash. It appears also from the Certificate of the Naval Officer at *Boston*, that the said Pot and Pearl-Ash were there shipped for *England*, and from the Certificate of the proper Officer of the Custom House of *London*, that they were landed here. And from the Information we have received from the Soap-boilers, from Persons who have made chymical Experiments upon the Pot-Ash made by Mr. *Stephens*, and so introduced, and from a Variety of written Evidence laid before us, it appears to be equal, if not Superior in Goodness, to the best *Russian* Pot-Ash ; but whether Pot-Ash made in *America*, according to Mr. *Stephens's* Method, can be



be imported at as cheap a Rate as the best foreign Pot-Ash, depends upon the Nature of his Process, and a Variety of other incidental Circumstances, upon which it is impossible for us to form any Judgment, without being acquainted with that Process.

WITH regard to the second Point, *viz.* the Amount of his Expences, it was alledged by the Petitioner, that he had, in the Prosecution of this Affair, and in the various Experiments he had made, expended about eleven hundred Pounds; but he was not able to lay before us any Evidence to ascertain this Fact.

AS to the Nature and Extent of the Reward proposed by the Petitioner, he acquainted us, that he had offered to contract with the Soap-makers, for the yearly delivery of a hundred Tons of Pot-Ash for seven Years, at the Rate of twenty-five Pounds *per* Ton, and if he could make such a Contract, he would not expect any Gratitude from the Public for the Discovery of his Secret, but they had declined entering into any such Contract with him. We must however beg Leave to acquaint your Lordships, that several of the most considerable Soap-makers, who attended us upon this Occasion, did in our Presence declare themselves willing, and offered Mr. *Stephens* to enter into the Contract proposed by him, on Condition of his giving five hundred Pounds Security for the Performance of it, and provided the Pot-Ash, to be delivered in Consequence of such Contract, should be equal in Goodness to the best *Russia* Pot-Ash; for the Ascertainment of which it was proposed, that a Sample of the best *Russia* Pot-Ash should be previously agreed on and lodged in the Hands of two eminent Chymists then present, in order that Mr. *Stephens's* Pot-Ash might be  
by



by them compared with the said Sample before the Delivery, but Mr. *Stephens* declined accepting these Proposals.

Since we have been attended by the Petitioner, and by Mr. *John Hanbury* and Mr. *John Thomlinson* Merchants, who in his Behalf have laid before us the following Proposals ;

That Mr. *Stephens* do forthwith publish his Method of making Pot-Ash, and in Consideration thereof,

That parliamentary Security be given for the Payment of one Shilling to Mr. *Stephens*, for every hundred Weight of good and merchantable Pot-Ash, to be made in and imported from his Majesty's Plantations in *North America*, during the Term of fourteen Years from the 29th of *September* next.

And that upon the Importation of the first thousand Tons, the further Sum of one thousand Pounds be paid to Mr. *Stephens*, provided that Quantity be so made and imported before the 29th of *September* 1758.

Upon this Occasion it has been represented to us by the said Merchants, that their appearing in Behalf of the Petitioner, arises from a Consideration of the great Advantages which would accrue to this Kingdom from the Importation of Pot-Ashes from our own Colonies; and from a Conviction that the Petitioner is possessed of the Knowledge of making Pot-Ash equal in Goodness to the best *Russian* Pot-Ash; but that if he should not be able to perform his Engagements, yet no Disadvantage would accrue to the Public in granting him a Reward upon the Terms proposed by them, because, from the Nature of the Propositions, such Reward will depend upon an actual Performance of the Service, for which it was given, and  
if



if in Consequence of the Publication of Mr. *Stephens's* Process, no Pot-Ash shall be imported from *America*, he will be intitled to no Reward.

Upon Consideration of these Proposals, it appears to us, that the Bounty proposed to be granted to the Petitioner is to take Place upon all Pot-Ash imported from *America* without any Restriction or Limitation whatever; for as no Standard is established, so no Regulation is appointed for ascertaining either the Price, or the Quality of the Manufacture; and the whole Stress of the Restriction is laid upon the general Import of the Words, good and merchantable.

But these Words, unless attended with other Regulations, can have but little Effect in the Execution, and cannot be depended upon to secure what the Merchants in their Declaration understand to be the principal Aim and Object of the Measure proposed; namely, the Introduction of a Method for making Pot-Ash of a better Quality than has hitherto been practised in the Plantations; and to remove the Obstructions arising from a Want of Knowledge in this particular; for the Petitioner will be intitled to receive the full Bounty indiscriminately upon the bad as well as the good; and in Fact, the Bounty will be more considerable when paid upon Pot-Ash of an inferior Nature, than when paid upon Pot-Ash of a superior Price and Quality.

Upon the Whole we are of Opinion, that, if Pot-Ash can be made in and imported from *America*, equal in Goodness, and at as cheap a Rate, as that which we now take from other Countries, it will be greatly for the Advantage and Interest of this Kingdom, and of his Majesty's Colonies, and a Saving to the Nation of a very considerable



derable Sum of Money, which at present yearly goes out of it for the Purchase of this Commodity ; and therefore we think, that all proper Encouragement and a Reward ought to be given, to the setting on Foot and promoting so valuable a Branch of Commerce. But whatever Reward may be thought proper to be given to Mr. *Stephens*, we think, that great Care ought to be taken that such Reward be so ascertained, as to make it impossible for him to avail himself of the Benefit of it, without performing the Service for which it is granted, and obtaining that Object, which the Public have in View.

*We are,*

*My Lords,*

*Your Lordships*

*Most Obedient and*

*Most humble Servants,*

(Sign'd) { DUNK HALLIFAX,  
J. GRENVILLE,  
JAMES OSWALD.

*Ex-*



*Extract of the Report of the Committee of the Honourable  
House of Commons, 1755.*

MR. JOHN THOMLINSON, being examined, informed your Committee, that Pot-Ashes used formerly to be brought from *Russia*; but now great Quantities are brought from the *Mediterranean*, which he believes are paid for in Bills or Money; and that he apprehends the Balance of Trade to be 60,000 *l. per Ann.* against us in this Article; and at one Time, according to the best Calculation he could make, it was 100,000 *l. per Ann.* against us.

That he thinks if any good Ashes had come over from *America*, since the Act passed, he must have heard of it, but that he never heard of any except what the Petitioner sent over the Year before last, which went through his Compting-house, and were sold to Mr. *Impey* a Soap-maker. Then the said

MR. MICHAEL IMPEY being examined, said that he bought a Cask of 800 Weight of Pot-Ash made by the Petitioner: Before he used them he thought them the best he had ever seen, and because he would have them have a fair and candid Trial, he called several Persons of the Trade to be present at the making of them into Soap; and that they all approved of them; and that he would prefer them to *Russia* Ashes which are accounted the best; and that the Soap when made was very good; and that he could know *Stephens's* Pot-Ashes, by the Look and Taste, from any other.

That he believes the Soap-makers use about 1500 Tons of Ashes yearly in their Trade; and that about three



Years ago, *Russia* Ashes were from 3*l.* to 3*l.* 10*s.* per hundred Weight; and that the Merchants mixed the good and bad together, and sold them so.

MR. *ROBERT COKER* Soap-maker, said he and his Brother were present when the last Witness tried Mr. *Stephens's* Ashes; and that they approved of them, and thought them preferable to the best *Russia*; and that after the Soap was made, they desired half a Firkin of it, which they kept two or three Months, and it stood very well in the Summer Time, and kept a firm Body, which shewed the Ashes good and kind in Quality.\* And that he could know *Stephens's* Ash from *Russia* or any other Ashes he ever saw, by the Appearance.

MR. *BARTHOLOMEW ALSTON* produced a Parcel of Pot-Ash which was sent from *Virginia*, as made there. And

MR. *JOHN PHILLIPS* produced a Parcel of Pot-Ash made by Mr. *Stephens's* Method, which he said was made after Mr. *Stephens* left *America*, and which he received in *Boston*, from whence he lately came. And

MR. *IMPEY* being shewn both the last mentioned Samples of Ashes, said, that those produced by Mr. *Alston* were not Pot-Ashes, and no better than common Wood Ashes; and that he would not use them if they were given him; but thinks the Pot-Ash produced by Mr. *Phillips* of the same Kind, and equal in Goodness, with those he used before of *Stephens's*. And that he would prefer them to *Russia* Ashes, if he could buy them at the same Price. And

MR.

\* The Pot-Ash, which will make good Crown Soap, is certainly good for all Uses in the Woollen, Linnen, and other Manufactures.



MR. *COKER*, being shewn the said Ashes, confirmed Mr. *Impey*'s Evidence; and added, that the Person who made *Stephen*'s Pot-Ash must be very skilful in the Art.

MR. *THOMAS TOWNSEND* Chymist, being likewise shewn the said Samples of Ashes, confirmed the Evidence of Mr. *Impey* and Mr. *Coker*; and added that he had tried some of *Stephens*'s Ash, and found it to be much stronger than any Sort of Ash he ever used: And the Person must understand the making of Pot-Ashes very well, who made them.

THE DECLARATION *of Merchants and others relating to the Utility of, and the Cause that has retarded the making of Pot-Ash, since the Act of Parliament to encourage it, in the Plantations.*

WHEREAS it has been requested of us to declare our Opinions, concerning the Manufacture of Pot-Ash, in the *American* Colonies belonging to this Crown; we the underwritten Merchants, Planters and others, trading to and interested in his Majesty's Plantations in *America*, do hereby declare, that it doth not appear to us, that either Pot or Pearl-Ashes are made there, since the last Indulgence granted by Parliament, in greater Quantities than before.

FURTHER, that we know not of any Importation made here of those Commodities from *America*, except small Quantities for Trials, which have always proved deficient, in some Respect or other.

WE are of Opinion, that the ill Success of this Manufacture, in the Plantations, is owing to the Want of Knowledge



ledge in the true Method of making the same ; and that all due Encouragement should be given for the Removal of this Impediment ; in as much as the Interest of his Majesty's Subjects, and particularly our own, is concerned in the Cultivation of so necessary a Commodity ; by Means of which a new Article of Returns may be made from *North America*, for the Goods sent thither ; for Want of which our Trade is oftentimes very much circumscribed.

*London, 26th November, 1753.*

*S. Waldo,  
W. Thomson,  
W. Woodroffe,  
Rog. Price,  
Jacob Ayres,  
W. Vaughan,  
Geo. Eveleigh,  
Barlow Trecothick,  
Joseph Mico,  
Tho. Lane,  
John Barrett,  
John Nickleson,  
Sam. Sparrow,  
Moses Franks,  
Flo. Vassall,  
Sheldon Wright,  
Tho. Hyam,*

*Rich. Partridge,  
Alex. Champion,  
Rich. Feneway,  
John Watson,  
Tho. Middleton,  
John Beswicke,  
Rich. Shubrick,  
Step. Huntley,  
Jer. Fonell,  
Rob. Plumstead,  
Elias Bland,  
Cha. Wright,  
J. Hanbury,  
Dan. Barclay,  
John Thomlinson,  
Sam. Lloyd.*

Besides this Declaration, a Petition to the same Effect was preferred in the House of Commons, from the Agents for several of the *British Northern Colonies in America,*



*merica*, Merchants trading thither, Soap-makers, Dry-Salters, Whitsters, and others.

*A Letter from Mr. Chissim, an eminent Dry-salter, to Mr. Stephens.*

Spittlefields, Jan. 19th, 1754.

S I R,

*I* Have tried your *Ashes*, and my Opinion is, that they are very good; they are very strong, and I believe there is no better; as I do, that they will answer the Expectation of any one that buys them.

I am, Sir, Yours, &c.

*A Letter from Dr. Morris, Chemical Lecturer, to Mr. Stephens.*

S I R,

*S*INCE my last of the 6th Instant, from Experiments made on your *Pot-Ash* and the *Russian*, I have found that it is at the least equal to it in Strength and Purity, so that it cannot fail answering the same Purposes in our Manufactures.

I am, Sir, Yours, &c.

Rider-street, 19th Jan. 1754.

There are many other Testimonies of the same Kind from other Salters and Soap-makers, Whitsters, Dyers, &c. but my Intention being to inform, and not to impose a Volume upon the Public, I here make Use only of what are necessary to the End designed.

HAVING



HAVING given full Proof of the Utility of this Method of making Pot-Ash, the following Letter might help to silence those, who still labour to perswade Gentlemen to believe, that the Art of making Pot-Ash is so well known,\* that any further Encouragement, than Leave to import it Duty free, which is given by the Act of Parliament of 1751, is unnecessary ; but either these Calumniators are infatuated ; or it is their *Interest* to exclaim in Spight of Conviction, and so I leave them to persevere in the Wrong. The following Parcel of unfaleable Pot-Ash was imported after the Act of 1751, but not made according to my Process.

*A Letter from Mr. Alexander Champion, a New York Merchant, to Mr. Stephens.*

S I R,

*THE Pot-Ash which came this Summer from my Friends in New York, turning out so bad, after Trial made, that it is unfit for Use ; and the Success of their Work depending upon the Report of this Specimen, which will not sell at any Rate ; I am afraid, as it happens too, just after the Encouragement given by Parliament, there is no Hope of more from them. Wishing the ill Success of this may not have a bad Effect upon others also, as in Times past, and that you may Succeed,*

I am, Sir, Yours, &c.

Ayliffe-street, 30th Nov. 1753.

It

\* An infamous Process called, *A genuine Account of the Manner of making the best Russia Pot-Ash*, was published about two Years ago ; and fathered upon the late Honourable Sir Peter Warren : The same was republished about two Months ago.



It is yet more remarkable, that among several Parcels of Pot-Ash attempted since the Act was passed, and sent as Specimens from *New England, New York, Pennsylvania, Virginia, &c.* that not one of them sold for more than half the Price of mine, and that all or most of the Works are at an End, except those set on Foot by me, and which were not in a bad Way on the 15th of *April* last, as appears by a Letter of that Date from Mr. *Henry Barnes*, a Correspondent of mine in *New England*, of which the following is an Extract.

“ I have made three Tons of Pot-Ash ; and must  
 “ let you know, that Ashes come in beyond Expecta-  
 “ tion. We have at *Bolton, Lancaster* and *Petersham*,  
 “ as much as will make 20 Tons of Pot-Ash.”

Those that know the Inclemency of the Season in that Country from the first of *November*, when he begun, to the Date of his Letter, must allow that Gentleman to be neither idle, nor faint-hearted.

THAT Nothing might be wanting to make this compleat, by the Favour of Mr. *Saxby*, I procured from the Custom-House the following Draft of a blank Certificate, that no one, any Ways concerned in the shipping or unlading of Pot-Ash from the *British* Plantations in *America*, may be at a Loss for Want of Form, which would occasion much Trouble, as well in the Customs, as in the Compting-House.



Port of  
in

}

**K** NOW ye that of  
in hath ship'd  
on Board the whereof  
is Master, bound for

Casks, containing of *British*

A B 2 Casks, cont. 2000  
A C 3 Casks, cont. 3000  
—  
5 Casks, cont. 5000  
Plantation Pot-Ash, marked and numbered as *per*  
Margent.

THESE are to certify that the abovenamed  
of hath made  
Oath before us, that the of Pot-Ash are  
of the Growth and Produce of this Province, and  
were produced and manufactured by  
of in the Province of  
in Pursuance of an Act of Par-  
liament made in the twenty-fourth Year of his  
Majesty's Reign, entitled, An Act for the encou-  
raging the making of Pot-Ash and Pearl-Ash in  
the *British* Plantations in *America*.

(L.S.)

A B

In Testimony whereof we have here-  
unto set our Hands and Seals of Office this  
Day of

in the Year of the Reign  
of our Sovereign Lord King *George* the  
Second, and in the Year of our Lord  
175

(L.S.)

C D

R E-



# REFERENCES to the Plan of the Kiln, Vatts, Furnace, &c.

## Plate I. Fig. 1.

**L**OGS rolled on upon each other, with smaller Pieces of Wood, to fill the Interstices, for making the Pile of Wood the more compact and close for burning.

## Fig. 2.

**A.** A Pile of Brush and Loppings, with the heavier Wood of that Sort, for pressing close the smaller.

## Fig. 3.

### The Ash Kiln.

**A** The Bed of the Kiln, which flies off about four Foot by two from the Grate, more or less, according to its Size.

**B** Quadrangular Iron Bars, with opposite Angles upwards and downwards, not exceeding the Distance of an Inch from each other.

**C** The Ash-Hole, square with the Grate; and from  $2\frac{1}{2}$  to 3 Foot deep or more.

## Fig. 4.

**A.** A Pair of small Scales for weighing the Lye.

**B** The Lye Bottle, containing about 4 Ounces, filled with Water, and in Ballance with **C** it's proper Weight in the opposite Scale.

**D** A Set of small Weights commonly called Caracts or Carods, being aliquot Parts of the Water in the Phial or Lye Bottle, by which the Strength of the Lye is ascertained, and are made as follows :

Weigh the Phial, then fill it with Water and weigh that; divide the Weight of Water into equal Parts until you get to the 128th, which is called a Caract, a 64th 2 Caracts, &c. until you have a Weight equal to the fourth Part of the Water which is called 32 Caracts, all which small Weights, together with one equal to the Bottle filled with Water, are to be kept for Use.

Fig. 5. The Furnace Pipe. Fig. 6. Cold Chizzle. Fig. 7. Register.

Plate II. Fig. 1. Represents the Cisterns for making the Lye.

**A B C** Three Steepers five Feet deep, and any width, as four, six or eight Feet square; to be made of the best white Pine or Cyprus Plank, with square Joints and strong Oak Frames; each placed over a Receiver, and with a Cock on it's Side to let off the Lye, and a Vent upon a Level with, or rather beneath, the Surface of the Grating.

**D** False Bottoms or Lattice, made of Boards, are 8 Inches deep and 5 square; with a Hole in the under Edge of every Partition, for the Lye to pass through in the Steeper.

**E** Three Receivers, each standing under, and projecting out from, it's Steeper. To be made of the best Stuff also, and carefully put together. To be laid in tough Clay well rammed within the Ground; and their Tops to be level with the Surface. These need not be so large as the Steepers by 6, 8, or 12 Inches.



- F A Cistern for keeping the Lye in.  
 G A Hand Pump for throwing the Lye out of the Receivers into the Steepers, &c.

*Fig. 2.* Represents a Section of the Furnace of Calcination and Fusion, with the Caldron for Evaporation.

- A The Vessel over the Furnace, in which the Lye and Ashes are mixed.  
 B A Hole within a few Inches of the Back of the Furnace, with an Iron Socket, to let the Pipe through the hinder Part of the Arch, to reach down within two Inches of the Floor.  
 C The Caldron for boiling the Lye to a Dryness, for making Pearl-Ash, must be cast from the best Iron Ore, about 8 Inches deep and about 3 Feet six Inches Diameter; the Rim  $\frac{3}{4}$  growing to a full Inch thick at Bottom.  
 D The Vessel, from whence the Liquor runs as fast into the Caldron as it evaporates.

*Fig. 3.* Shews a front Elevation of the Furnace and Caldron.

- A The Iron Door to the Floor of the Furnace about  $20 \times 12$ .  
 BBB The Doors to the Fire Places  $16 \times 14$ .  
 CCC Ash-Holes 2 Feet deep.  
 D A Register or Iron Plate in each Funnel of the Furnace, for governing the Fire, and made to slide in a Frame.

*Fig. 4.* Represents a Plan of the Furnace and Caldron.

- A The Ground  $12 \times 15$  Feet.  
 BB The two side Walls three Feet thick and more, and four Feet high.  
 CCCC The Front and back Walls two Feet thick.  
 DD Quadrangular Iron Bars, laid Angle-ways six Inches lower than the Floor, and  $\frac{3}{4}$  Inch distance from each other, which form a Grate 18 Inches wide.  
 E The Floor of the Furnace 10 Feet long,  $4\frac{1}{2}$  Feet wide, and 14 Inches below the Crown of the Arch; with an Inch descent from Back to Front.  
 F Course of Bricks on each Side of the Floor, to raise an 8 Inch Wall two Inches high, to save the Mass in Fusion from falling into the Fire Places.  
 GGGG Four Flues  $5 \times 4$  which lead to the Funnels.  
 HH The Funnels  $12 \times 8$ .  
 I Iron Bars which form a Grate  $2\frac{1}{2}$  Feet square.  
 GGG Three Flues }  
 H Funnel } to the Caldron.

Note, the Mortar for building the Furnace must be made of Loam, the Arch 18 Inches thick, and the Floor laid with Tiles upon a Layer of Sand, at least an Inch thick, with very neat Joints: And the Door had better be unhung, and the Way bricked up, leaving only a Hole about 4 Inches square or less, to see how it works, when you make Pot-Ash.



Fig. 1



Fig. 2

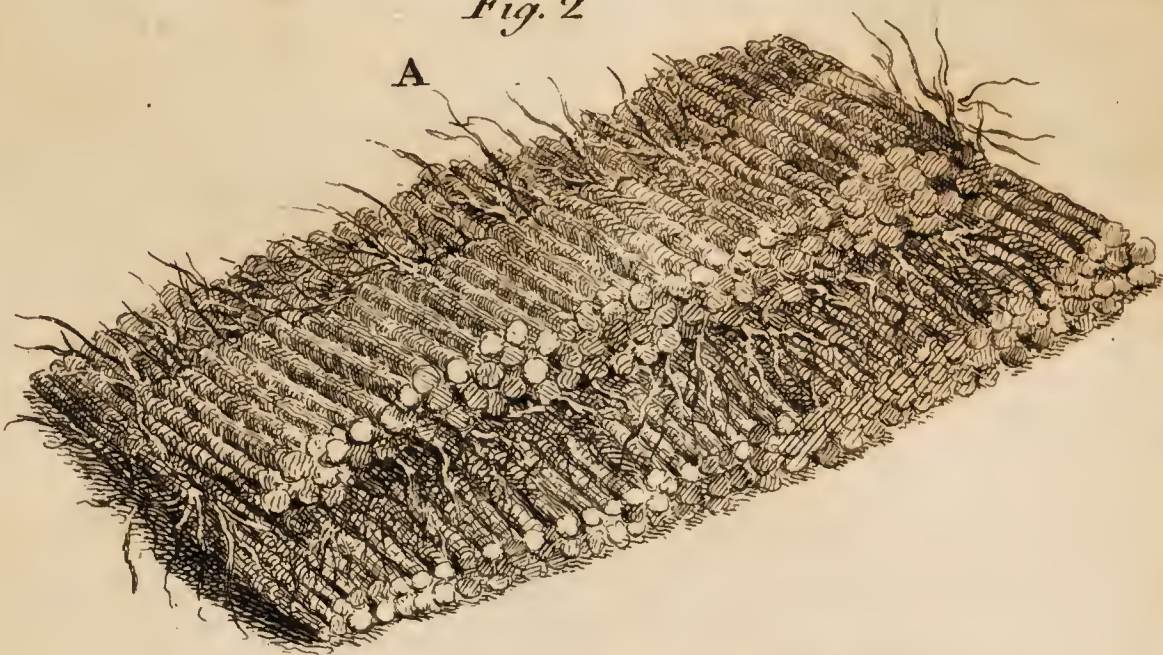


Fig. 7

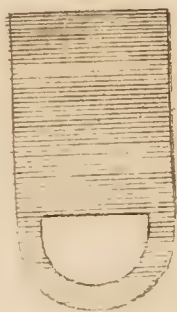


Fig. 5



Fig. 6



Fig. 4

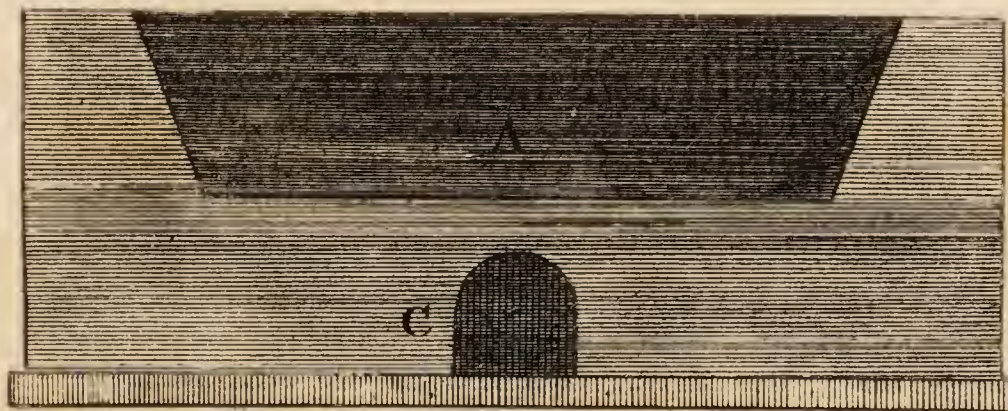
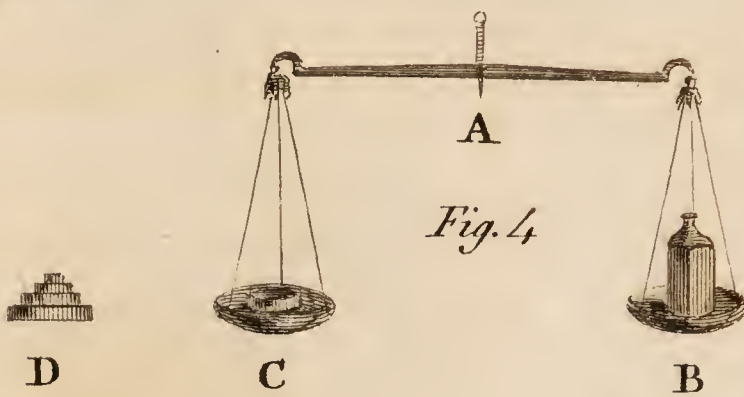
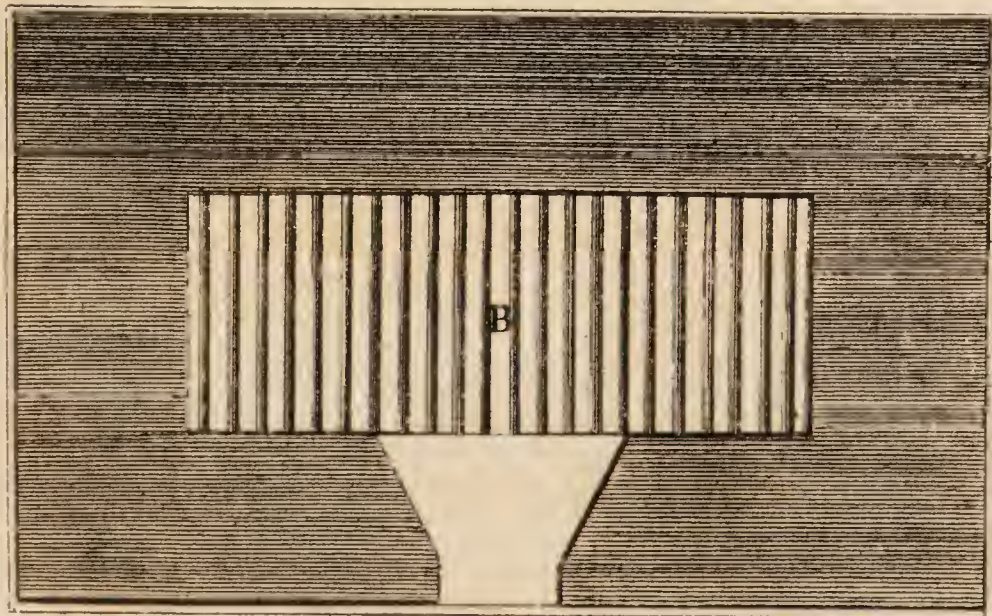


Fig. 3









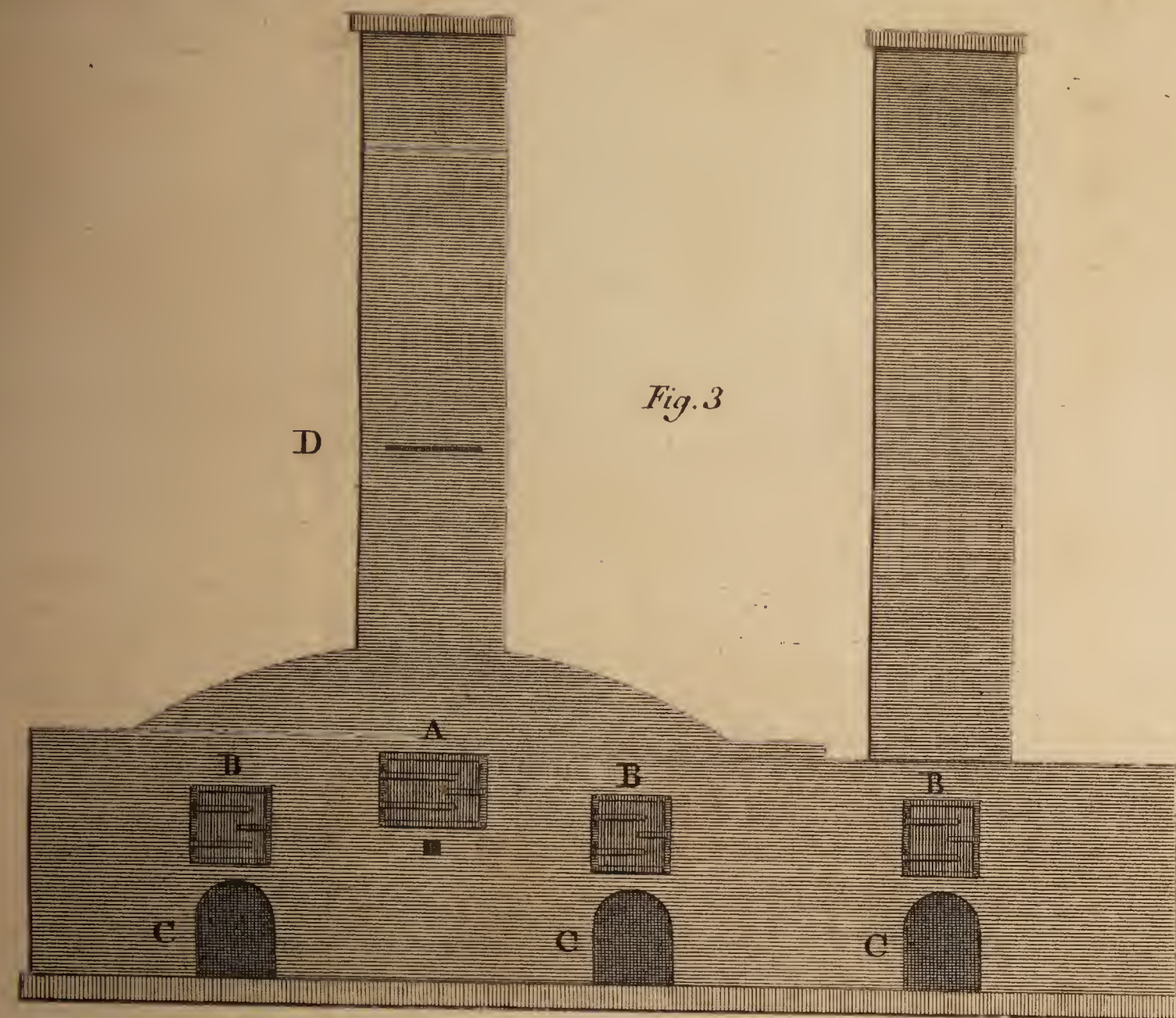


Fig. 3

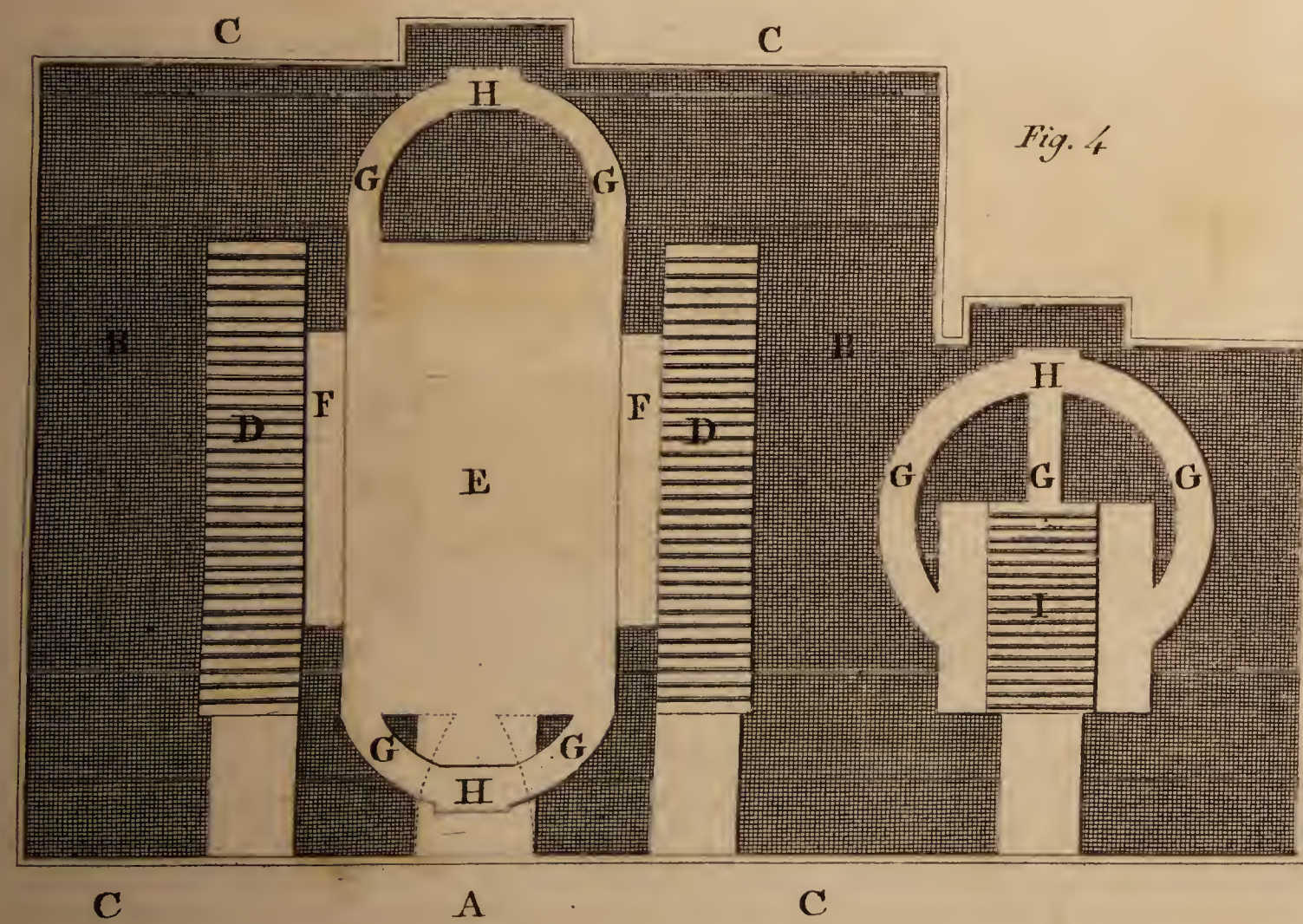


Fig. 4

feet 15 10 5 1 2 3 4 5

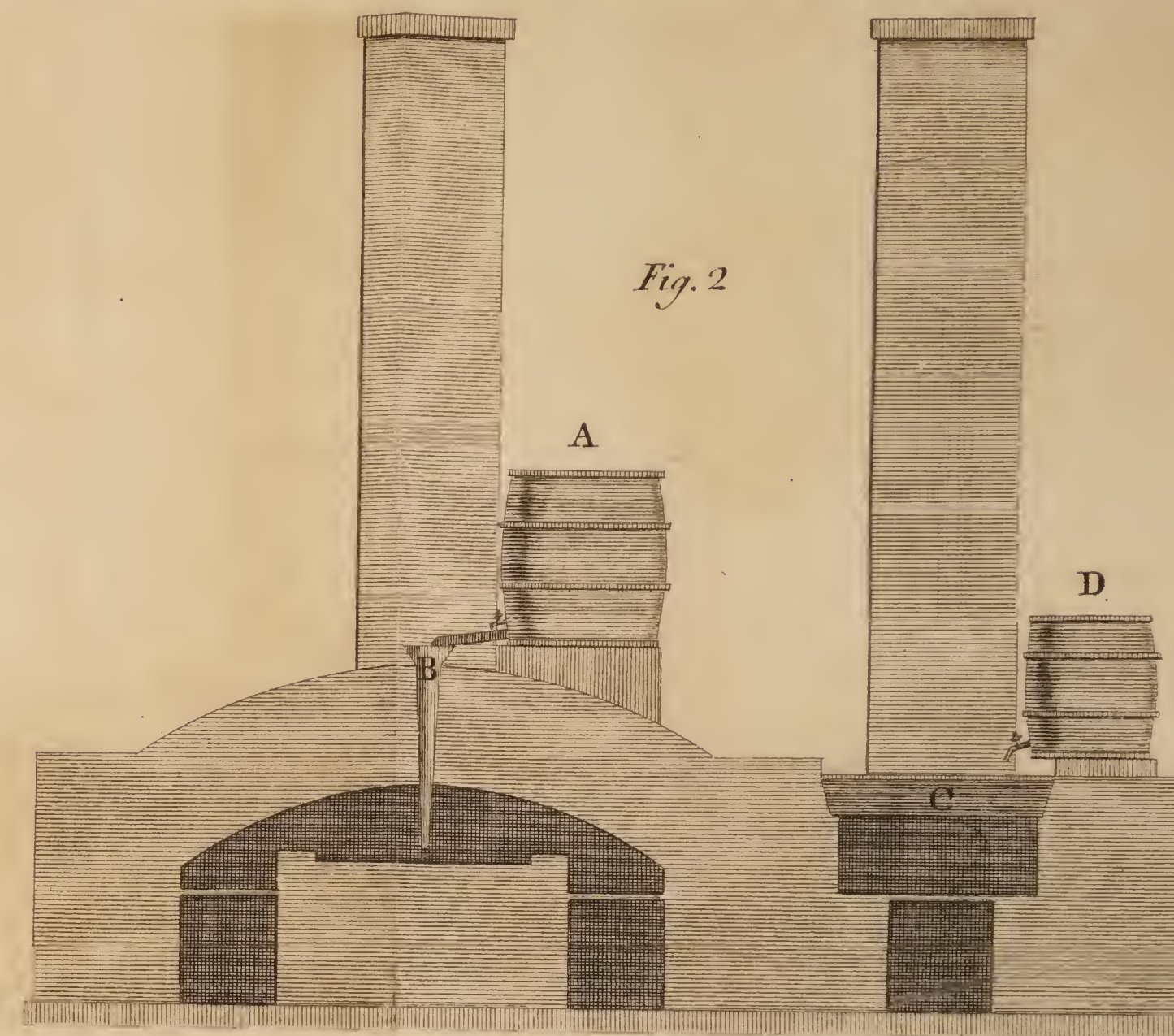


Fig. 2

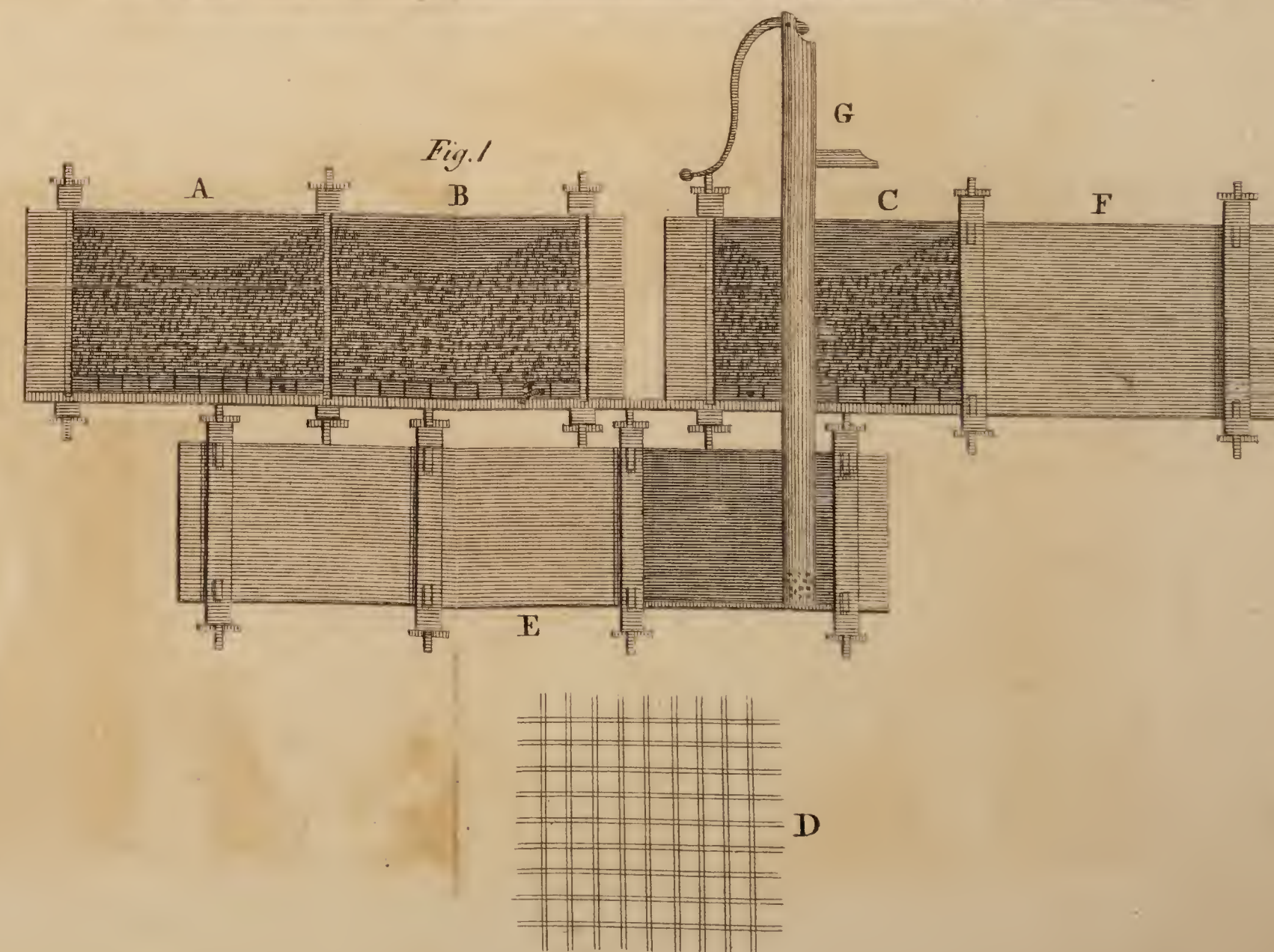


Fig. 1

feet 15 10 5 1 2 3 4 5







## APPENDIX I.

## ON BARILLA.

METHOD OF CULTIVATING  
THE SPANISH KALI AND  
OBTAINING THE BARILLA  
FROM IT.

Barilla is a kind of Pot-Ash obtained by burning an Herb called the SPANISH KALI; and is applied to the same Purposes of making Soap, Glafs, *etc.* The Kali, though an annual Plant, will, when once sown, spontaneously renew and propagate itself from its Seed. It is found naturally on sandy waste Places on the Sea-Coast; but it may be easily produced by Culture; and must indeed be so produced, where Quantities are wanted for great Manufactures of the Barilla.

The Seed may be easily obtained from *Spain*; as it is commonly sold: and may be spread on sandy Tracts of Land, that lye waste on the Sea-Coast; where it will maintain itself, provided the whole of the Plants be not gathered for the Barilla before the Seed falls. But it may, likewise, be sown on cultivated Lands with advantage, along with Corn, particularly with the Kinds early ripe; as the Kali will only be rising out of the Ground when the Corn



is ready to be reaped ; and does not attain to its Maturity till late in the Autumn. So that the one does no Injury to the other by their being raised together on the same Ground.

Where Kali is sown on large waste Tracts of sandy Land, it may be sufficient to strew the Seed in the Spring any time when Rain is expected ; but where it is to be raised in cultivated Fields it may be sown along with Corn ; and, in this case, when it is collected for burning, care must be taken to save a due Quantity of Seed ; which must be done by shaking the Herb over a Piece of coarse Canvas, or Sack-cloth, placed to receive it ; when such of the Fruit, as being very ripe, will fall off ; and by stripping, from some of the mature Plants, such additional Quantity as may be wanted.

The Herb must be in its decline, that is after greatest part of the Seed is perfected, when it is gathered for burning ; and it may be collected, by drawing the Plants out of the Ground where they grow thinly, as on waste lands ; or, by mowing, where there is a full Crop, as when raised on cultivated Ground.

After the Herb is drawn or mowed, it must be dried ; which may be effected by treating it in the same manner as Grass for Hay ; and it is of sufficient dryness, when so much of the succulent Moisture is exhaled, that it will readily burn. A greater dryness, such as may be caused by a too long Exposure to the Sun in hot Countries,  
is



is injurious to it ; as it makes the Matter burn too rapidly ; which would both lessen the Quantity of the lixivate Salt produced, and deprave its Qualities.

In order to burn the Herb when thus prepared, a large Hole must be made in the Ground, and fashioned by such Bricks and Mortar as will bear a strong Heat into a Kiln, of which the Cavity may be of the figure of an Egg, with an Opening at the Top, large enough to admit of the Herbs being put into the Cavity in order to its being burnt, and to the Barilla's being taken out after the burning is performed ; and another Opening placed somewhat above the Bottom, passing horizontally into the Cavity, in order to suffer a draught of Air to be made for supporting the Fire ; which last Opening must also be made capable of being closely stopt, when it may be proper to suppress or extinguish the Fire.

The Herb must be then first tied up in Bundles as close and dense as they can be formed ; and as large as can be thrust into the upper Hole ; and one of them being set on fire, must be put into the Cavity of the Kiln. After which the rest must be thrust in as soon after each other as is practicable without extinguishing the Fire. The Openings into the Cavity must then be closed, both above and below, so as to leave no greater Passage for Air than will be just sufficient to keep in the Fire ; and, in this State, the Herb must be suffered to burn till the Smoke appear to diminish considerably. A freer Passage must be



then given to the Air through the two Openings ; and the Fire suffered to burn briskly, and even assisted by some fresh Bundles, if it will not rise strongly without ; and this must be continued till the whole Matter, that will burn, be perfectly consumed. After which the Openings must be closed till the Kiln be sufficiently cooled to suffer the incinerated Mass or burnt Matter in its Bottom to be examined. This Mass, or burnt Matter, is the *Barilla*: which, if the Operation has been rightly performed, will appear in the form of a Cake ; of a hard Consistence, of a blueish grey Colour throughout, free from any offensive Smell when moistened, and having little Holes like Partridge Eyes, from whence the best Kind has taken its Name.

The Cakes must be then broken ; taken out of the Kiln ; and packed up in tight Casks.

The present Price of the best or PARTRIDGE EYE BARILLA is of about eighteen Pounds *per* Ton value.



## APPENDIX II.

## ON POT-ASHES.

PROCESS FOR MAKING POT-ASHES; WITH DIRECTIONS FOR PERFORMING IT WITH PROFIT BY PRIVATE FAMILIES WHERE WOOD IS PLENTIFULLY BURNT.

The Utensils and Impliments necessary for making Pot-Ash in smaller Quantities are——

VATS for dissolving the Salts; which may either be round like Casks, or square. They may be made of the best white Pine, or Cypress; and if they be round, they must be well secured with Iron Hoops; or, if square, with an oaken Frame. They may be about four or five Feet in depth; and of any Diameter or Width, according to the occasion there may be with relation to the quantity of Wood-ashes for the making of the Pot-ash. These Vats must have a kind of false Bottoms, formed by making a sort of Lattice-work, or Grate, by placing Boards with the Edge upwards, cross each other; so that the Spaces, or Areas, betwixt them may be about five  
Inches



Inches square, and eight Inches deep; the Cavities or Hollows formed by these Boards must communicate with each other freely, by Holes cut in the lower Edge, where it rests on the real Bottom of the Vat; and a Vent must be made into one of them on the same Level, by means of a Cock, in order to draw off any Fluid from them, or in the place of such Lattice, Bricks may be laid at the distance of four Inches from each other on the real Bottom of the Vat.

A Receiver for the Lye, which may be any kind of Wooden Vessel, that can be conveniently placed under the Cock of the dissolving Vats; and will contain the Lye as it runs off.

Vats for containing, and keeping, the strong Lye till the time of Evaporation, or the weak Lye till it can be put upon fresh Ashes, for rendering it of due Strength; which may be Casks, or any other kind of Vessel that is tight and will hold the due Quantity.

A Caldron of Iron for Evaporation, where larger Quantities are in question, which may be set in the manner of a Copper for domestic Uses; and may be greater or less according to the quantity of Ashes employed for the making of Pot-Ash. But where private Families intend only to employ the Ashes produced by their own Fires, or with some additional Quantity, not great, an Iron Pot, such as is usually had for dressing Victuals, or other like  
Uses,



Uses, may be best employed, and requires only to be hung over a Kitchen or other domestic Fire; by which the Expence of Fuel and trouble of separate Attendance may be saved in the principal part of the Evaporation.

An Iron Rake, with close Teeth, for separating bits of Wood unburnt, or reduced only to the state of Coal, from the Ashes.

A strong broad Iron Chisel, with a Wooden Mallet, for cutting the Salt out of the Chaldron, or Pot, after the Evaporation.

A pair of small common Scales, with two Phials of equal Contents and Weight, for determining the strength of the Lye.

Pot-Ashes are the fixed Salt extracted from the Ashes of burnt Vegetables; and may be obtained from any kind of Wood found in *North-America*, except Ever-greens, which abound in Turpentine; as the Pines, Firs, Cypress, Cedars, *etc.* But though most kinds will afford some Proportion, yet the large Forest Trees, whose Leaves fall in the Winter, such as Oak, Ash, Beach, *etc.* when felled in a State of Decline from their Age, and soon after committed to the Fire, yield the greatest Quantity.

The Wood may be either burnt for domestic Uses, in common Hearths or Stoves, or purposely for the Ashes, on any dry flat Spot of Ground: But where a Work is intended to be carried on at all times



times of the Year, a Kiln built of any commodious form with Iron Bars over a capacious Ash-hole, secured from being flooded by Rain or melted Snow from the contiguous Ground, is most convenient. The Wood should be thoroughly burnt, and where there appear to be any remaining Bits in an unburnt or coaly State, they should be carefully raked out by the means of the Iron Rake above described, and thrown again on the Fire.

As soon as the Ashes can be removed from the Place where they are burnt, let them be put into a Cask, or laid on a Floor in a Shed; and gently moistened, and worked together, till they form a stiff paste-like Mass, in which State they should be rammed as close together as possible, and kept about three Weeks, or till such longer time, as there may be a proper Quantity collected for extracting the Salt.

When the Ashes are thus ready, let them be put into one of the Vats above described; the Lattice, or Grate of which must be first covered with coarse Wheaten or Rye Straw, about the thickness of a Foot, and in this Vat they must be well rammed together as they are put in. When the Vat is thus filled with them, let the Surface be hollowed towards the Middle, so as to form as it were a Basin to receive the Water to be poured in. This Hollow or Basin may be four or five Inches deep, and must not extend quite to the edge of the  
Vat,



but must leave a small Margin or Alder of the Ashes to prevent the Liquor from flowing to the sides of the Vat, and finding a Passage there, instead of soaking equally through the whole.

When the Vat is thus prepared, fill the Vat or Hollow in the Ashes with soft Water, till they will imbibe no more, and then, after standing some time, turn the Vat at the Bottom of the Vat, and draw off as much of Liquor, which will now, the Ashes being dissolved, become a Lye, into the Receiver mentioned above. Remove the Receiver, and put fresh Water on the Ashes, supplying the Basen from time to time, till what runs off be void of Taste and Smell.

By this means, a stronger and weaker Lye will be obtained; which must be put into separate Vats, and, if the strong Lye contain a sufficient proportion of Salt, it may be ready for Evaporation. To know the most certain Method is to weigh the Lye against other Lye made of the first degree of Strength; which may be most easily testified by filling two Phials of equal Contents and Weight with each kind, and observing the difference. But it is not required that these should be of any precise Standard, only that it should be as near as it can conveniently be made, to save time in the Evaporation. A moderate deficiency of Strength therefore may be allowed, as the trouble occasioned by bringing



ing it to the full Strength would be greater, than that of evaporating it; and if it will float an Egg it may be suffered to pass where there is no Inconveniency in prolonging the Evaporation. When however the first Lye is found too weak it must be put on fresh Ashes, and drawn off as before directed, till it become of due Strength. The weaker Lye or second running must also be put on fresh Ashes for the same Reason, and in the same manner, and if none be ready at the time, it must be kept till a fresh Quantity be obtained.

The Lye being obtained of due Strength it must be either evaporated in an Iron Caldron, in a proper Furnace, as above mentioned, where large Quantities of Pot Ash are to be prepared, or where only smaller Quantities are in question, in the Iron Pot. In which latter Case the greater part of the Evaporation may be performed on the Fire of a Kitchen, or other Room that is large enough to admit of boiling the Pot.

In the Evaporation of Lye in the Caldron, the Fire must be kept as strong as is practicable without occasioning the Fluid to boil over; and, as the Quantity diminishes by Exhalation, it must be again renewed, till the Caldron will receive no more without being more than four-fifths full; or till the whole quantity of Lye to be evaporated be put in. The Fire should however be abated, when the Salt appears to form on the Surface, to prevent the  
Waste



te, and other Inconveniencies, of an  
 ofive Bubbling that may otherwise throw  
 of it out of the Caldron; and the  
 t must be continued under due regu-  
 n with relation to this Accident, till  
 watry Exhalation be wholly finished.  
 er which, even if the Fire be increased,  
 of the Matter will remain in the State  
 blackish brown Fluid, for some Hours,  
 re the Quantity is not small; though,  
 Heat being duly kept up, the whole  
 become solid; of a stone-like Hard-  
 , and light brown Colour.

he same Method must be followed  
 n the Iron Pot is used, over a common  
 , till the Water be wholly evaporated.  
 er which, this kind of Fire being in-  
 cient to bring the Salt to a due State  
 Dryness, a stronger must be supplied to  
 h the Operation, which may be made  
 his manner: Take off the Pot from  
 first Fire, and chusing a proper dry  
 t of Ground in the open Air, let the  
 e Feet of it be there raised a Foot or  
 e from the Ground, by means of Bricks  
 on each other, with the Ends pointing  
 he Center of the Pot; and not passing  
 her under the Feet than may be just  
 ecessary for their resting firmly on them.  
 under the Pot, and betwixt the Bricks,  
 es of dry Wood of a convenient Size;  
 also Chips to make them burn more  
 modiously, and, having set them on  
 , keep a due Heat as before directed  
 he case of the Caldron, till the Matter  
 be



be dry and hard; which may be easily done by supplying Fuel on each side the Pot, as it appears wanting.

When the Mass is perfectly dry in the Caldron, or Pot, suppress the Fire, and as soon as the Diminution of the Heat renders it practicable, cut it out with the Chisel above mentioned, and pack it up in tight Casks that will secure it from the Air. This kind of Pot-Ash is not the same with the *Russian*, or any other, except some that has been brought here from *America*; but being a purer Salt is superior in Value, and when justly sold bears a greater Price, as it may be used with more Advantage in the making Hard Soap, which occasions the far greatest Consumption of these kind of Salts.

*The above Appendices were drawn up by Mr. Dossie at the request of the Society, and are printed by their Order.*